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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/537,372	06/03/2005	Bernard Diem	272637US2PCT	2639
22850	7590	11/29/2007		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER CHU, CHRIS C	
			ART UNIT	PAPER NUMBER
			2815	
			NOTIFICATION DATE	DELIVERY MODE
			11/29/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

<b>Office Action Summary</b>	Application No. 10/537,372	Applicant(s) DIEM ET AL.	
	Examiner Chris C. Chu	Art Unit 2815	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. - See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 September 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 43 - 56 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 43 - 45, 47, 48 and 50 - 51 is/are rejected.
- 7) ☒ Claim(s) 46, 49 and 53 - 56 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendment filed on September 12, 2007 has been received and entered in the case.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 43 – 45, 48 and 50 – 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Orcutt et al. (U. S. Pat. No. 6,452,238) in view of Martin et al. (U. S. Pat. No. 6,465,280).

Regarding claim 43, Orcutt et al. discloses in e.g., Fig. 1 microstructure comprising in

- a first layer (the layer that contains the elements 112, 113, 113a and 114; see e.g., Fig. 1) on a substrate (111; column 3, lines 32 and 33)
- at least one sensitive element (112; column 3, lines 30 – 32. Since the device 112 is MEM devices and all MEMs devices are sensitive elements, hence the device 112 of Orcutt et al. reads as the sensitive element) connected to at least one contact pad (113a; column 3, line 46) by an electrical connection (113; column 3, lines 46 – 48) and protected by a package cap (124; column 3, lines 42 – 43. Since the element 124

is completely surrounded the device 112, hence the element 124 of Orcutt et al. reads as the package cap.),

- wherein the at least one sensitive element (112), the electrical connection (113) and the contact pad (113a) form an assembly delimited in a first layer by at least one trench (115; column 3, line 37 and see e.g., Fig. 1),
- said assembly (the assembly in Fig. 1) being covered by the package cap (124),
- said package cap (124) comprising
  - o at least one opening (118; column 3, line 35) above the at least one contact pad (113a; see e.g., Fig. 1) and
  - o being integral with, on the one hand, the contact pad (113a) on the edges of the opening and, on the other hand, a zone of the first layer (the layer that contains the elements 112, 113, 113a and 114) located beyond the trench (115) in relation to the assembly (see e.g., Fig. 1).

Orcutt et al. does not disclose an insulator layer between the first layer and the substrate. Martin et al. teaches in e.g., Fig. 2 an insulator layer (12; column 3, line 65) between a first layer (20 and 20'; column 4, line 2) and a substrate (14; column 3, line 66). It would have been obvious to one of ordinary skill in the art at the time when the invention was made to apply the insulator layer of Martin et al. between the first layer and the substrate of Orcutt et al. as taught by Martin et al. to form multi interconnection layers on the silicon substrate (column 3, line 60 – column 4, line 17).

Regarding claim 44, Orcutt et al. discloses in e.g., Fig. 1 the package cap (124) being sealed in a leak tight manner in such a way as to define a leak tight cavity (115) in which is

located the at least one sensitive element (112; column 4, lines 64 – 65).

Regarding claim 45, a further difference between instant invention and the combined structure of Orcutt et al. and Martin et al. is the package cap comprising at least one orifice. Martin et al. teaches in e.g., Fig. 2 a package cap (22; column 4, line 5) comprising at least one orifice (90; column 4, lines 37 – 40). It would have been obvious to one of ordinary skill in the art at the time when the invention was made to further apply the at least one orifice of Martin et al. into the package cap of Orcutt et al., as modified, as taught by Martin et al. to use as an optical port (column 4, lines 48 – 51). Furthermore, the limitation “capable of being sealed by a plug in such a way as to be able to control an atmosphere of said cavity” is intended use language that does not differentiate the claimed structure over Orcutt et al. and Martin et al. Since the at least one orifice in the package cap is capable to be sealed by a plug in such a way as to be able to control an atmosphere of the cavity even if it is not optimized for this purpose.

Regarding claim 48, Orcutt et al. discloses in e.g., Fig. 1 the package cap (124) being formed of a semi-conductor (column 4, lines 34 – 36) or conductor material.

Regarding claim 50, Orcutt et al. discloses in e.g., Fig. 1 a dielectric layer (114; column 3, line 39 and 40) insulating the package cap (124) from the contact pad (113a; see e.g., Fig. 1).

Regarding claim 51, Orcutt et al. discloses in e.g., Fig. 1 a dielectric layer (114) insulating the package cap (124) from the zone of said first layer (the layer that contains the elements 112, 113, 113a and 114) located beyond the at least one trench (115) in relation to the assembly (see e.g., Fig. 1).

Regarding claim 52, Orcutt et al. discloses in e.g., Fig. 1 and Fig. 7 the contact pad (113a or 713a; see e.g., Fig. 7) being covered with a conductive band (730; column 7, line 8) located

inside the at least one opening (718; column 7, line 13 and see e.g., Fig. 7).

4. Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Orcutt et al. and Martin et al. as applied to claim 43 above, and further in view of Lin et al. (U. S. Pat. No. 6,436,853).

While Orcutt et al. and Martin et al. disclose the use of the package cap, Orcutt et al. and Martin et al. do not disclose the material of the package cap being dielectric material. Lin et al. teaches in e.g., Fig. 1d the material of a package cap (the Silicon Nitride cap layer) being dielectric material (see e.g., Fig. 1d). It would have been obvious to one of ordinary skill in the art at the time when the invention was made to further apply the dielectric material of Lin et al. as the specific material to form the package cap of Orcutt et al. and Martin et al. as taught by Lin et al. to control the electrical power output (column 12, lines 37 – 39).

#### ***Allowable Subject Matter***

5. Claim 46, 49 and 53 – 56 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

(A) Claim 46 contains allowable subject matter because none of references of record teach or suggest, either singularly or in combination, at least the limitation of an electrical connection, a contact pad and a sensitive element being formed of a same material.

(B) Claim 49 contains allowable subject matter because none of references of record teach or suggest, either singularly or in combination, at least the limitation of an assembly

and a package cap being formed of a same conductor or semi-conductor material.

(C) Claim 53 contains allowable subject matter because none of references of record teach or suggest, either singularly or in combination, at least the limitation of a package cap comprising at least one pillar resting on a zone of at least one sensitive element.

(D) Since claims 54 – 56 are dependent claims of objected claim (claim 53), these claims are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims (e.g., claim 25).

### *Conclusion*

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Application/Control Number:  
10/537,372  
Art Unit: 2815

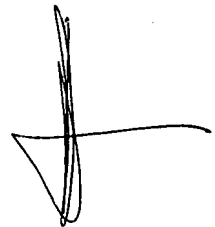
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is 571-272-1724. The examiner can normally be reached on 11:30 - 8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Parker can be reached on 571-272-2298. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Chris C. Chu  
Examiner  
Art Unit 2815

A handwritten signature in black ink, appearing to be 'K. Parker', with a stylized, looped design.

c.c.  
Sunday, November 25, 2007

KENNETH PARKER  
SUPERVISORY PATENT EXAMINER